Unit title	Unit 21: Introduction to AI
Guided learning hours	60
Number of lessons	30
Duration of lessons	2 hours

Key to learning opportunities			
IA	Internal assessment	**RS**	Revision session
GS	Guest speaker	**V**	Visit
IS	Independent study	**C**	Classroom activities directed by teacher

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Lesson	Topic	Lesson type	Suggested activities	Resources
Learning aim A: Investigate uses and applications of AI				
1	**A1 Uses and applications of AI**	IS C	• **Lead-in:** Introduce learners to the unit content. Give learners an overview of the assessments. **Tutor presentation:** Talk about what AI and machine learning are and how they are used. • **Paired/small-group activity:** Learners should research AI including the history and potential direction of AI. • **Plenary:** Learners should share their findings from the activity and receive feedback from their peers. Summarise the lesson and use Q&A to establish learners' understanding.	• Computers with internet connection, for research.
2	**A2 Implications of AI**	IS C	• **Tutor presentation:** Explain the wider considerations of AI including legal and ethical factors. • **Paired/small-group activity:** Provide learners with suitable case studies that have wider considerations of AI, learners need to make notes on the legal and ethical factors of these case studies. • **Plenary:** Learners should share their findings from the activity and receive feedback from their peers.	• Computers with internet connection, for research. • Case studies for learner activity.

Lesson	Topic	Lesson type	Suggested activities	Resources
			Summarise the lesson and use Q&A to establish learners' understanding.	
3	**A1 Uses and applications of AI** **A2 Implications of AI**	V	• Organise an educational visit to a local organisation that uses AI. • **Plenary:** Summarise the visit and use Q&A to establish learners' understanding.	• Local organisation
4-5	**Assignment 1** **Learning aim A**	IA	• **Assignment writing:** learners should work independently on Assignment 1 (further work will be needed on this outside of the classroom).	• Assignment 1.
Learning aim B: Plan and prepare an AI solution to meet identified needs				
6-7	**B1 Data for AI**	IS C	• **Lead-in:** Explain the tasks involved of this learning aim. • **Tutor presentation:** Detail the fundamental concepts of data and its use in AI. • **Paired/small-group practical activity:** Learners should explore different data sets to analyse the differences between types of data (structured, unstructured, etc). Feedback the analysis to whole class.	• Computers with internet. • Example data sets.

Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Individual activity:** Learners cold investigate different sources of data to examine the types of data that is generated and how it is used by different stakeholders. • **Plenary:** Use Q & A to review the data used in AI.	
8	**B1 Data for AI**	GS	• **Guest speaker:** An employee from a local business should visit the lesson to talk about how they use Big Data and its place within AI. Learners should ask their prepared questions. • **Tutor-led discussion:** Initiate a discussion about the guest speaker session. Talk about the use of Big Data.	• Computers for practical tasks. • Note pads/pens for taking notes on session from guest speaker.
9-10	**B2 Gathering and preparing data**	IS C	• **Lead-in:** Introduce the topic area. • **Tutor presentation:** Introduce the importance of effective data collection and preparation to ensure accurate and meaningful outcomes from an AI solution. • **Paired/small-group practical activity:** Learners should select suitable data and data sources for example AI projects.	• Computers for practical tasks. • List of example AI projects.

Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Individual activity:** Learners should research the legislative, ethical and security considerations when gathering, preparing and using data for an AI project. • **Plenary:** Share feedback on the activity. Use Q&A to establish learners' understanding of test plans.	
Learning aim C: Develop and AI solution to meet identified needs				
11-14	**C1 AI Models**	IS C	• **Lead-in:** Facilitate a discussion about developing AI solutions to meet identified needs. • **Tutor presentation:** Discuss the AI models by input and output. • **Paired/small-group practical activity:** Learners should be given full AI solution (including data), learners must discuss the types of problems that these solutions have solved, and which models have been used. • **Individual activity:** Provide learners with a suggested solution for an AI project, they need to source the data. • **Plenary:** Summarise the lesson and use Q&A to establish learners' understanding.	• Computers with internet connection, for research. • AI solutions.

Lesson	Topic	Lesson type	Suggested activities	Resources
15-20	**C2 Tools for the development of AI solutions**	IS	• **Tutor-led discussion:** Discuss the different tools that can be used for development of an AI solution. • **Independent learning activity:** Learners should be given several programming challenges to explore the practical skills needed to develop an AI solution. • **Paired/small-group activity**: Review the developed programs from the challenges' and share with the class. • **Plenary:** Summarise the lesson and use Q&A to establish learners' understanding.	• Computers with internet connection, for research. • IDE for practical programming. • Programming challenges.
21-30	**Assignment 2 Learning aims B & C**	IA	• **Assignment writing:** learners should work independently on Assignment 2 (further work will be needed on this outside of the classroom).	• Assignment 2.